Assignment - 2

1. If $f(x) = \frac{1}{x} + \frac{2}{x-3}$, $x \in R - \{0, 3\}$ then find $f\left(\frac{1}{3}\right) - f(-3) + f(2)$.

2. If $f(x) = x^2(x-1)^2$, $x \in R$ then prove that $f(x+1) - f(x) = 4x^3$

3. If $f(x) = x(x+1)(2x+1)$ then prove that $f(x) - f(x-1) = 6x^2$.

4. If $f(x) = \frac{x(x+1)}{x-2}$ then find $f(0) + f(-1) + f(-3)$

5. If $f(x) = x^3 - 2x + \frac{1}{x}$ then find $f(x) + f(-x)$.

6. A magazine publisher finds that the variable cost of each magazine is Rs. 40 and the fixed cost is Rs. 18000. If the selling price is Rs. 50 then find the breakeven point.

7. The demand function of a commodity is $x = \frac{50 - 2P}{3}$, find the revenue function. Also find the Revenue, when the demand is of 10 units.

8. If $f(x) = x^3$ and $g(x) = 3x^2 - 2x$, $x \in \{0, 1, 2\}$, are the functions equal?